

REMARKS

The examiner objected to the abstract because the title at the top of page of the abstract. Applicants have deleted the title on the Abstract page.

The examiner rejected Claim 16 under 35 U.S.C. 112, second paragraph, as being indefinite. Applicant has amended Claim 16 to delete the limitation "the second mannequin."

35 U.S.C. §102

The examiner rejected Claims 1-4, 7-15 and 17-20 under 35 U.S.C. 102(b) as being anticipated by Hasunuma et al. (Development of Teleportation Master System with a Kinesthetic Sensation of Presence, 1999).

The examiner stated:

As per claims 1 and 13, Hasunuma et al., teaches a teleportation system and an associated method having a virtual reality encounter system comprising (see figs. 1 and 2), motion sensors positioned on a human user (see figs. 1 and 2, wherein operator being taken as human user), the motion sensors sending motion signals corresponding to movements of the user as detected by the motion sensors relative to a reference point the motion signals over a communications network (see figs. 1 and 2); and a humanoid robot (see figs. 1 and 2), receiving, from the communications network (see figs. 1 and 2), the motion signals to induce movement of the robot according to movement of the human user (see figs. 1 and 2); with respect to claim 13, sending motion signals from motion sensors positioned on a human user (see figs. 1 and 2), the motion signals corresponding to movements of the human user (see section 1, first paragraph, wherein human user being considered as operator, as noted above) as detected by the motion sensors relative to a reference point (see figs. 1 and 2). Note: The entire concept of this application has been embedded into Hasunuma's et al. publication. See entire publication.

Applicant's claim 1 as amended, is distinct over Hasunuma et al. Claim 1 is directed to "A virtual reality encounter system." Claim 1 includes the features of motion sensors positioned on a human user, the motion sensors sending motion signals corresponding to movements of the user as detected by the motion sensors relative to a reference point the motion signals over a communications network, a set of goggles worn by the user, the goggles including a display to render video signals received from a camera; and a humanoid robot, receiving, from the communications network, the motion signals ... the humanoid robot further comprising at least

one camera coupled to humanoid robot, the camera for sending video signals to the communications network for reception by the set of goggles.

Hasunuma et al. neither describes nor suggests this combination of features. Rather, Hasunuma et al. describes¹:

We have developed a teleexistence control cockpit system by which an operator can command basic motions as to arm manipulation and traveling to a robot under being displayed force and moment, kinesthetic sensation, and audio-visual information.

Figure 2 shows the system configuration. It consists of an audio-visual display system and a teleoperation master system; the audio-visual display system includes nine display screens, a head mount display (HMD) with a head tracker, and a 3D sound system, and the teleoperation master system includes right and left master-arms with two gripping operation devices, a motion-base, and a 3D mouse. The teleoperation master system is used to provide an operator with kinesthetic sensation as for robot's acting force and moment and upper body's motion, while the audio-visual display system is used to provide with realistic information as for robot's surrounding views and sounds.

When traveling, an operator sends a command by using a display screen with the 3D mouse as a command input device; surrounding scenery from the robot is displayed on the other screens with some auxiliary information, and kinesthetic sensation is displayed by moving the motion-base. When working on a dexterous task with arms, an operator manipulates by using master-arms and gripping operation devices, watching views on the HMD from robot eye cameras; kinesthetic sensation of inclination of robot upper body is displayed with the motion-base, and force and torque at wrists of robot and gripping force can be fed back to the operator through the master-arms and the gripping operation devices.

In use of the teleoperation master system, an operator leans on a seat of the motion-base and pushes his hands in attachments of the master-arms and the gripping operation devices. Then, through the master-arm and the gripping operation device, the operator can remotely manipulate the robot arms and hands. The motion-base can display vibration, shock, and acceleration acting on the robot and upper body's inclination to the operator.

Thus, Hasunuma et al. neither describes nor suggests the features of motion sensors positioned on a human user. As described by Hasunuma et al. an operator "... manipulates by using master-arms and gripping operation devices, watching views on the HMD from robot eye cameras; kinesthetic sensation of inclination of robot upper body is displayed with the motion-base, and force and torque at wrists of robot and gripping force can be fed back to the operator through the master-arms and the gripping operation devices." However, none of these elements are worn by the user. Nor does Hasunuma et al describe the motion sensors sending motion

¹ Hasunuma et al. page 2.

signals corresponding to movements of the user as detected by the motion sensors relative to a reference point. Hasunuma et al likewise neither describes nor suggests "a set of goggles worn by the user, the goggles including a display to render video signals received from ... the at least one camera coupled to humanoid robot," Rather, Hasunuma et al depicts head mount display (HMD) with a head tracker and display screen that is projected in front of the user.

Claims 2-4 and 6-13 are allowable at least for the reasons discussed in claim 1.

Claim 13 as amended includes the features of sending motion signals from motion sensors positioned on a human user, the motion signals corresponding to movements of the human user as detected by the motion sensors relative to a reference point, the motion signals being transmitted over a communications network, receiving video signals from a camera via the communications network, with receiving using a set of goggles worn by the user, the goggles including a display to render the received video signals from the camera, receiving, at a humanoid robot, the motion signals ... sending video signals received from the camera positioned on the humanoid robot to the goggles, via the communication network

Claim 13 thus is allowable at least for the reasons discussed in claim 1. Claims 14, 15 and 17-20 are allowable for the reason that these claims depend from claim 13.

35 U.S.C. §103

The examiner rejected Claims 5 and 16 under 35 U.S.C. 103(a) as being unpatentable over Hasunuma et al.

The examiner stated:

As per claim 5, Hasunuma et al., teaches essential features of the invention substantially as claimed with the exception of a second humanoid robot in the second location, and a second set of goggles to receive the video signals; and with respect to claim 16, a second mannequin.

However, it would have been obvious to modify Hasunuma et al. teachings by using more than one robot/mannequin, that would require more than one goggle to receive video signals or any signals, because modification would have been a desire feature into Hasunuma et al. teachings in order to improve the usability and the functionability (sic) of system as a whole.

Claim 5 is neither described nor suggested by Hasunuma et al. Claim 5, as amended, is directed to a virtual encounter with two users and robots. Specifically claim 5 limits the system of claim 4 specifying the robot of claim 4 is at a first location and the set of goggles of claim 4 is at a second location. Claim 5 calls for "... a second humanoid robot in the second location, the second humanoid robot having a second microphone and a second camera for sending audio and video signals over the communication network ... a second set of goggles worn by a second user at the first location to receive the video signals from the first camera ... and a second earphone worn by the second user ... to receive the audio signals from the first microphone... .

The examiner acknowledges that Hasunuma et al. do not teach the second humanoid robot and second set of goggles. Nevertheless, the examiner argues that it would be obvious to modify Hasunuma et al.: "by using more than one robot that would require more than one goggle to receive video signals or any signals, because modification would have been a desire feature into Hasunuma et al. teachings in order to improve the usability and the functionality (sic) of system as a whole." Applicant disagrees.

Hasunuma et al. is directed to a virtual robot platform for cockpit systems. In particular, Hasunuma et al. describes that:

The platform consists of a virtual robot platform, three actual humanoid robots, and three teleexistence control cockpit systems to operate each humanoid robot. A set of a humanoid robot and a teleexistence control cockpit system can form an advanced remote control humanoid robot platform; an image of the platform is shown in Figure 1.

Thus, clearly Hasunuma et al. contemplates more than one robot. However, what is neither described nor suggested by Hasunuma et al. is that the robot (of claims 4 and 1) is at a first location and the set of goggles (of claims 4 and 1) is at a second location and the system includes a second humanoid robot in the second location ... and a second set of goggles worn by a second user at the first location ... and a second earphone worn by the second user at the first location Hasunuma et al. would not suggest having two locations with a robot and user in each of the locations.

Accordingly, claim 5 is allowable over Hasunuma et al.

Claim 16 is allowable over Hasunuma et al. for analogous reasons as those given for claim 5.

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Respectfully submitted,

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Denis G. Maloney
Reg. No. 29,670

Fish & Richardson P.C.
225 Franklin Street
Boston, MA 02110
Telephone: (617) 542-5070
Facsimile: (617) 542-8906